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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/736,519 | 12/13/2000 | Yukiko Morioka | WAM-03301 | 8886 |

7590 03/26/2002

Patent Group
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| EXAMINER |
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GARRETT, DAWN L

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1774

DATE MAILED: 03/26/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

MAF

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 09/736,519 | Applicant(s) MORIOKA ET AL. | |
| | Examiner Dawn Garrett | Art Unit 1774 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-103 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-103 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Objections

1. Claims 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, and 103 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 1, upon which claim 2 depends, recites "the spectrum of the luminescence from light-emitting zone includes at least one peak at a wavelength which is different from any one of fluorescent peak positions of the compounds included in light-emitting zone" whereas claim 2 "recites the spectrum of the luminescence from light-emitting zone includes at least one peak at a wavelength which is longer than any one of fluorescent peak positions of the compounds included in light-emitting zone". It is inherent in claim 1 if two wavelengths are different that one will be longer than the other as recited in claim 2. Accordingly, claim 2 does not further limit independent claim 1.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 19-22, 35-40, 53-56, 69-74, 87-90, and 103 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokailin et al. (US 5,126,214). Tokailin et al. discloses a organic electroluminescent element comprising an electroluminescent material part which emits a near ultraviolet ray of light and a fluorescent material part which absorbs the ultraviolet light emitted from the electroluminescent material and emits a fluorescence in a visible light range from blue to red (see abstract). The combination of two materials reads upon the instant claim requirement of at least two materials with different wavelengths. The Tokailin et al. emitting material (A) which emits ultraviolet to violet excitation light may comprise a aromatic hydrocarbon as listed in column 4, lines 15-68 (see also col. 3, lines 13-48). The emitting material (B) which emits blue to bluish green excitation light may comprise stilbene-based compounds and coumarin-based compounds (see col. 5, line 18 to col. 6, line 4). Per the instant claim 35-40 and 53-56 requirement that the emitting zone be adjacent the anode, Tokailin et al. discloses the emitting material is sandwiched between two electrodes (see col. 9, lines 65-68). In further embodiments, other layers may be added to result in formations such as anode/hole injection layer/emitting layer/cathode per instant claims 69-74 and 87-90 requiring a hole injection layer between the anode and emitting zone (see col. 10, lines 1-5). Per instant claim 103 requiring an electron injecting layer, other embodiments may include anode/emitting layer/electron injecting layer/cathode and anode/hole injection layer/emitting layer/electron injection layer/cathode (see col. 10,

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lines 1-19). Tokailin et al. disclose all elements of claims 1-6, 19-22, 35-40, 53-56, 69-74, 87-90, and 103.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 7-12, 23-28, 41-46, 57-62, 75-80, and 91-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokailin et al. (US 5,126,214). The reference is relied upon as set forth above. Tokailin et al. discloses a organic electroluminescent element comprising an electroluminescent material part which emits a near ultraviolet ray of light and a fluorescent material part which absorbs the ultraviolet light emitted from the electroluminescent material and emits a fluorescence in a visible light range from blue to red (see abstract). The combination of two materials reads upon the

instant claim requirement of at least two materials with different wavelengths. The Tokailin et al. emitting material (A) which emits ultraviolet to violet excitation light may comprise a aromatic hydrocarbon as listed in column 4, lines 15-68 (see also col. 3, lines 13-48). The emitting material (B) which emits blue to bluish green excitation light may comprise stilbene-based compounds and coumarin-based compounds (see col. 5, line 18 to col. 6, line 4). Per the instant claim 41-46 and 57-62 requirement that the emitting zone be adjacent the anode, Tokailin et al. discloses the emitting material is sandwiched between two electrodes (see col. 9, lines 65-68). In further embodiments, other layers may be added to result in formations such as anode/hole injection layer/emitting layer/cathode per instant claims 75-80 and 91-96 requiring a hole injection layer between the anode and emitting zone (see col. 10, lines 1-5). Tokailin et al. teach hole transfer compounds (see col. 13, line 42 through col. 14, line 53), which read upon instant formula [1] of instant claims 7-12. Tokailin et al. fails to teach, specifically, that the amine compounds are used in a layer with the emitting material; however, Tokailin et al. does teach "the hole injection layer may consist of one layer, or an accumulation of one of the above mentioned layers and a hole injection layer using other compound" (see col. 14, lines 56-61). It would have been obvious to one of ordinary skill in the art to have added the hole-transporting amine compound to the emitting layer, because Tokailin et al. discloses mixed layers may be formed.

7. Claims 13-18, 29-34, 47-52, 63-68, 81-86, and 97-102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokailin et al. (US 5,126,214) in view of Hitoshi et al. (JP 11-074079). Tokailin et al. is relied upon as set forth in the above

paragraphs. Tokailin et al. discloses a organic electroluminescent element comprising an electroluminescent material part which emits a near ultraviolet ray of light and a fluorescent material part which absorbs the ultraviolet light emitted from the electroluminescent material and emits a fluorescence in a visible light range from blue to red (see abstract). The combination of two materials reads upon the instant claim requirement of at least two materials with different wavelengths. The Tokailin et al. emitting material (A) which emits ultraviolet to violet excitation light may comprise a aromatic hydrocarbon as listed in column 4, lines 15-68 (see also col. 3, lines 13-48). The emitting material (B) which emits blue to bluish green excitation light may comprise stilbene-based compounds and coumarin-based compounds (see col. 5, line 18 to col. 6, line 4). Per the instant claim 47-52 and 63-68 requirement that the emitting zone be adjacent the anode, Tokailin et al. discloses the emitting material is sandwiched between two electrodes (see col. 9, lines 65-68). In further embodiments, other layers may be added to result in formations such as anode/hole injection layer/emitting layer/cathode per instant claims 81-86 and 97-102 requiring a hole injection layer between the anode and emitting zone (see col. 10, lines 1-5). Tokailin et al. teach hole transfer compounds (see col. 13, line 42 through col. 14, line 53), which read upon instant formula [1] of instant claims 7-12. Tokailin et al. fails to teach, specifically, that the amine compounds are used in a layer with the emitting material; however, Tokailin et al. does teach "the hole injection layer may consist of one layer, or an accumulation of one of the above mentioned layers and a hole injection layer using other compound" (see col. 14, lines 56-61). Although Tokailin et al. teaches several amine compounds

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per instant formula [1], the reference fails to show a formula [1] compound comprising a styryl substituent as required by instant claims 13-18. Hitoshi et al. teach in analogous art compounds with styryl groups, which read upon instant formula [1] (see abstract and patent). Hitoshi et al. teach these compounds result in a EL element with high brightness and long life. It would have been obvious to one of ordinary skill in the art to have selected a styryl-containing amine compound taught by Hitoshi et al. for the amine compound of the Tokailin et al. device, because Hitoshi et al. teach the compounds are useful in creating an durable EL device. In addition, it would have been obvious to one of ordinary skill in the art to have added the hole-transporting amine compound to the emitting layer, because Tokailin et al. discloses mixed layers may be formed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (703)305-0788. The examiner can normally be reached from Monday through Friday.

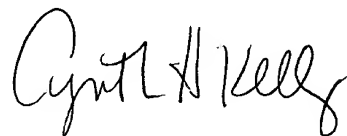
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703)-308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-2351.

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

D.G.
March 20, 2002

A handwritten signature in cursive script, appearing to read "Cynthia H. Kelly", is written over the typed name and title.